UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

March 12, 2012

Ms. Jennifer Harris, P.E.
North Carolina Turnpike Authority
1578 Mail Service Center
Raleigh, North Carolina 27699-1578

SUBJECT: Federal Final Environmental Impact Statement for the Mid-Currituck Bridge Study, Currituck and Dare Counties, North Carolina; TIP Project No.: R-2576; CEQ No.: 20120029

Dear Ms. Harris:

The U.S. Environmental Protection Agency Region 4 (EPA) has reviewed the subject document and is commenting in accordance with Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The North Carolina Turnpike Authority (NCTA), a division of the North Carolina Department of Transportation (NCDOT), and the Federal Highway Administration (FHWA) are proposing to construct a new, multilane 7-mile bridge and other access roads and interchanges across Currituck Sound between US 158 in Currituck County and NC 12 in Dare County. NCTA and FHWA have identified a preferred alternative as a refinement to MCB4/C1/Option A (or MCB4/A/C1).

Review comments on the Final Environmental Impact Statement (FEIS) are included in an attachment to this letter (See Attachment A). In summary, EPA continues to have environmental concerns to the water quality to Currituck Sound and impacts to other natural resources, including aquatic species and migratory birds. The long-term degradation to the water quality of Currituck Sound from untreated stormwater remains EPA's primary environmental concern. We plan to continue to work with the transportation agencies on this unresolved issue. EPA continues to have environmental concerns for the indirect and cumulative effects of the proposed project, including increased development pressure north of Corolla, N.C. EPA does acknowledge the avoidance and minimization efforts associated with the transportation agencies Preferred Alternative, including the bridging of Maple Swamp, the type of construction method proposed that eliminates dredging, and the potential methods to treat bridge stormwater.

EPA staff will continue to work with the transportation agencies and other resource and permitting agencies on the proposed action and opportunities for additional avoidance and minimization measures. EPA requests that review comments included in Attachment A be addressed prior to or in the Record of Decision (ROD), as appropriate. EPA requests a copy of the final mitigation plan for review and acceptance prior to the issuance of the ROD. Should you

have any questions, please feel free to call Mr. Christopher Militscher of my staff at 404-562-9512 or 919-856-4206.

Sincerely,

Heinz J. Mueller, Chief
NEPA Program Office

cc: J. Sullivan, FHWA
W. Biddlecome, USACE
D. Wainwright, NCDWQ
C. Brittingham, NCDCM

w/Attachment

Attachment A

FEIS Review Comments

Mid-Currituck Bridge Study

Currituck and Dare Counties

TIP No.: R-2576

General Comments

NCTA and FHWA identify cost and affordability as the second most important priority for selecting the Preferred Alternative (Page xiv). Pages xv and xvi identify cost ranges (high and low) for the different alternatives. EPA has provided the range of the cost differences for each alternative and percent difference from the low cost estimate as shown below:

ER2:	$107.3 million	25.8%
MCB2/A/C1:	$178.2 million	20.2%
MCB2/B/C1:	$170.1 million	21.3%
MCB2/A/C2:	$177.0 million	19.9%
MCB2/B/C2:	$171.1 million	21.3%
MCB4/A/C1:	$130.9 million	19.1%
MCB4/B/C1:	$123.4 million	20.5%
MCB4/A/C2:	$128.3 million	18.9%
MCB4/B/C2:	$120.9 million	20.3%
Preferred Alt.:	$91.7 million	18.3%

NCTA and FHWA have not identified the reasons for the variable range of costs for the different alternatives and why the 'improve existing roadways' alternative (ER2) has the greatest degree of cost uncertainty (25.8%) compared with the Preferred Alternative (18.3%) and other bridge alternatives. It is also not clear in the FEIS why there is such a greater cost for alternative MCB4/A/C1 ($685.3 to $816.2 million) than for the Preferred Alternative of MCB4/A/C1 with refinements (Pages x and xi) which is estimated to cost $502.4 to $594.1 million. The median cost difference for two similar bridge alternatives is estimated to $202.6 million. The FEIS does not provide the rationale for the $202.6 million cost difference with the discussion concerning the refinements that were made to MCB4/A/C1 other than the explaining that there will be less widening along NC 12, roundabouts instead of intersections, and that the approximately 7-mile long bridge will be approximately 250 feet shorter.

Pages xvi and xvii of the FEIS includes a discussion concerning funding. There is no identification of Federal funding sources for any of the build alternatives, including the Preferred Alternative. The following statement is not fully described: "*If these funds were allocated to NCDOT, they would be subject to the equity formula, which would dilute the effectiveness of funding*". The FEIS does not describe 'the equity formula' or its specific requirements as it relates to the proposed project.

Regarding Table S-1 and the Comparison of Key Impacts, EPA reiterates its unaddressed comments from the DEIS concerning the relocation of "Outdoor Advertising Signs" under the different alternatives. Other 'key impacts' identified in this table are not believed by EPA to be significant, including the land use plan compatibility. This is not an 'impact' as defined under NEPA and other statutes. Land use plans can be and are periodically changed, revised or modified.

Table S-1 also provides for impacts to businesses. For ER2, the transportation agencies identify 40 lost parking spaces at the Home Depot, or 10%. For the Preferred Alternative, 129 parking spaces in Albacore Street commercial and retail area will be lost. The percentage of lost parking spaces in this important Outer Banks business area is not provided in the table. The FEIS does not identify the specific small businesses that will lose parking spaces in the Albacore Street commercial and retail area. Please see comments below from:

http://www.outerbankschamber.com/main/economic-outlook-for-the-outer-banks-nc/

Specifically, there are three sectors that that provide fifty [50%] percent of the jobs in the two county area [Dare and Currituck] and thereby show this orientation:

- *Accommodation and Food Services, which encompass the hotels, motels, and restaurants (20.7 percent of the jobs in the Outer Banks to 8.9 percent statewide);*
- *Retail Trade, from souvenir shops to grocery stores (18.3 percent on the Outer Banks to 11.7 percent in North Carolina); and,*
- *Real Estate, Rental and Leasing, to sell the second homes and to rent the beach houses (11.7 percent in Dare and Currituck Counties to 1.3 percent statewide).*

Purpose and Need

The FEIS reiterates the DEIS regarding purpose and need. The base year traffic included in the analysis is 2006 (Page 1-3). This base year traffic may not be an accurate measure of current or average conditions. Furthermore, the 'congestion that occurs on almost all of NC 12 in the project [study] area', is not described. EPA notes that traffic congestion occurs during the summer months due to the presence of vacationers to the Outer Banks. The transportation agencies evaluated traffic congestion using summer weekday (2 hours per day) and the summer weekend (7 hours per day). The FEIS states on Page 1-4 that travel demand exceeds capacity of NC 12 in Southern Shores. However, Page 1-3 highlights that US 158 is also becoming increasingly congested without providing details of the travel demand. Travel demand on US 158 is later identified on Page 1-4 as being expected to be notably greater in 2035 on the summer weekday.

Regarding Hurricane Evacuation and clearance times under N.C.G.S. Section 136-102.7, and the FEIS comments on Page 1-5 and Table 2-3, the Preferred Alternative does not meet the State's clearance times even with US 158 Reversing Center Turn Lane (27 hours) and US 158 Third Outbound Lane (22 hours). The US 158 Third Outbound Lane is not included in the Preferred Alternative and the clearance time would be 27 hours (50% greater than the standard). The Preferred Alternative does not meet the clearance time requirement and the FEIS does not fully address this purpose and need issue.

http://law.onecle.com/north-carolina/136-roads-and-highways/136-102.7.html

"Evacuation Standard: The hurricane evacuation standard to be used for any bridge or highway construction project pursuant to this Chapter shall be no more than 18 hours, as recommended by the State Emergency Management officials".

Per Table 2-3, ER2 provides the same clearance times as the Preferred Alternative but would include the US 158 Third Outbound Lane and would achieve the 22-hour clearance time. Alternative ER2 provides a 5-hour improvement in meeting the State's standard for hurricane evacuation compared to the Preferred Alternative.

Responses to Federal agencies DEIS comments were included in Chapter 2 to the included Compact Disk (CD) with the FEIS. It is noted that all of the corrections and revisions requested by Federal agencies and supplemental information to the DEIS identified in pages 2-1 to 2-47 were included in an amended Natural Resources Technical Report (NRTR) or other sections of the FEIS.

EPA recognizes the transportation agencies efforts to avoid and minimize impacts to natural resources including the refinements to MCB4/C1/Option A. However, avoidance and minimization efforts were only explored for the Preferred Alternative and not the other Detailed Study Alternatives (DSAs) such as ER2. Impacts to human and natural resources are now being compared to the DEIS DSAs with the Preferred Alternative without including any reasonable avoidance and minimization efforts for the other DSAs. The transportation agencies may wish to consider a discussion for not including comparative opportunities for avoidance and minimization measures for the other DSAs in the Record of Decision (ROD).

On page 2-26 of the responses to Federal agency comments (#9), the transportation agencies incorrectly stated the following: "*...however, the Preferred Alternative would avoid all direct impacts to coastal, brackish, and freshwater marsh*". Bridging existing wetlands minimizes impacts from direct fill activities. However, shading underneath bridges is also a direct impact through the eventual loss or change in wetlands vegetation. Construction activities will also potentially compact soils around the proposed bridges. Impacts from bridge shading to wetlands do not require compensatory mitigation under Section 404 of the Clean Water Act, but still potentially represent a direct impact.

On page 2-27 the transportation agencies have made a speculative assessment in response to comment #9 that is not supported by relevant studies ("*It is also likely that birds may become accustomed to the elevated bridge and will continue to use some areas in the bridge vicinity*"). Page 2-28 of the responses includes a conclusion from a study on bird mortality and roadkill data from bridges and roadways (Jacobson, 2005). Estimates of mortality from this study are given as being from 10 to 380 million each year. This enormous variation in the study data is not

believed to be statistically valid and a full explanation of the estimated range of mortality is not provided in the response. The 'expanded discussion' on bird mortality and vehicle collisions on bridges referenced in Section 4.1.4.2 of the revised NRTR is a duplicate discussion of the information provided on Page 2-28. EPA supports the USFWS's request for additional avoidance and minimization measures including the use bridge deck fencing to potentially reduce documented vehicle mortality of migratory birds.

The response on Page 2-29 regarding the removal of Aydlett Road is confusing ("*The presence of Aydlett Road was assumed in all cases since [because] its removal is unacceptable to Aydlett residents and Currituck County officials*"). Based upon the public hearings, responses from a majority of the residents in the Aydlett Road area were strongly opposed to any Mid-Currituck Bridge alternative. Transportation agencies are required to consider public input and local official concerns for traffic access and design but frequently make relocation and other transportation design decisions that are known to be 'unacceptable' to effected residents and local officials.

EPA does not concur with the assessment provided in the response on Page 2-31 concerning Indirect and Cumulative Effects, including eventual pressure to create NC 12 paved roadway access in the northern communities of Dare County to the Virginia border. Based upon past comments from a variety of sources, it is believed by EPA and some other resource agencies more than likely (reasonably foreseeable) that the Mid-Currituck Bridge once completed will encourage the further extension of a paved NC 12 through the undeveloped northern part of the island and the Currituck National Wildlife Refuge (CNWR). Please see: http://www.corollaguide.com/history

Past documented trends in the development of the Outer Banks would indicate that shortened access from other mainland locations will create additional pressure on the transportation agencies and other decision-makers to pave NC 12 north of Corolla to access private, undeveloped beachfront lands that are not included within CNWR. Efforts to connect the development communities in Carova Beach, Swan Beach and North Swan Beach along Sandfiddler Road/North Beach Access Road through CNWR to the paved NC 12 is believed by EPA to very foreseeable effect once a new bridge across Currituck Sound is constructed. Please see: http://www.corollaguide.com/getting_here and http://www.aaroads.com/guide.php?page=obxnc

The response to EPA's comment #7, page 2-35 is noted. However, the financial plan for the Preferred Alternative is not referenced or disclosed in the FEIS. The statement concerning long-term maintenance for 7 miles of new bridge infrastructure from the Preferred Alternative is vague: ("*The project is not anticipated to add to Division 1 maintenance expenditures during the period of the concession agreement, which is assumed in the FEIS to be 50 years*"). Federal and state agencies were previously informed by NCTA and FHWA that there was an existing Public Private Partnership (PPP) agreement and that this contract detailed short and long-term financial commitments. It is unclear why the commitments for maintenance expenditures of the new bridge are assumed and that they would be for 50 years. The ROD should clarify this issue.

The additional information concerning Division 1 traditional highway funding in the response to comment #11 is acknowledged. The anticipated cost of $300,000,000 for the Bonner Bridge Phase I project cited on Page 2-38 is not accurate. The NCDOT website cites a

total cost of $236,000,000. Other STIP projects in Division 1 are not detailed with respect to cost in this response. Regarding the revised cost estimate of $502.4 to $594.1 million for the Preferred Alternative, EPA was unable to find in the FEIS the breakdown of the financing needed to make the Preferred Alternative a 'practicable' alternative compared to ER2 (e.g., Highway Trust Fund Aide, Federal and State bonds, NCDOT gap funding accumulated, Federal loans, PPP contribution, etc.). This general information regarding the practicability of the Preferred Alternative should be considered for inclusion in the ROD. It is acknowledged that there may be some difficulty providing specific financing estimates for the Preferred Alternative with the range of cost uncertainty at 18.3 % or $91.7 million.

Regarding the response to comment #13, the transportation agencies might consider addressing substantial and significant effects criteria of the proposed action and include those impacts in summary tables. The relocation of outdoor advertising signs (e.g., or the number of utility poles to be relocated) are not generally considered by transportation agency to be 'key' impacts.

Regarding the response to comment #19 dealing with the introduction of invasive plant species, the information provided is not believed to be responsive or consistent with the FHWA requirements under Executive Order 13112. EPA has previously provided additional guidance to NCDOT and FHWA concerning the use of a combination of methods to potentially control invasive plants. Foremost, the transportation agencies should minimize clearing to existing vegetated areas to the extent practicable. Contractor and NCDOT equipment arriving from off-site locations can be cleaned daily to remove foreign seed sources, one of the most common sources of invasive plants on highway projects. Disturbed areas should be re-vegetated as soon as possible with native plants. Wherever aggressive invasive plants begin to establish a colony, measures that include physical or mechanical removal, herbicide spraying and /or re-planting should be performed expeditiously. Trained and knowledgeable site personnel can monitor for invasive plants weekly or monthly and take appropriate steps as soon as invasive plants are identified. EPA acknowledges and concurs that current NCDOT BMPs and monitoring activities are not to adequate to address the issues and only becomes a potential concern identified by resource agencies after construction of the project. A detailed monitoring and action plan needs to be developed prior to the approval of the project permits.

EPA acknowledges the approximate 1,600 feet of a new third outbound lane to the west of the NC 12/US 158 intersection to provide additional road capacity during hurricane evacuation. The distance from Duck, NC (where the traffic accident and malfunctioning traffic light occurred during the Hurricane Earl evacuation) is not provided. The transportation agencies have provided additional information on hurricane evacuation with respect to Hurricane Earl (August 25-September 5, 2010) and coordination with local emergency management officials. The traffic congestion on NC 12 following the evacuation order and traffic incident is documented in a letter from local emergency management officials. From EPA's cursory search, there was little to no news media concerning this evacuation problem along NC 12. Considering this example and the hours of delay for some visitors to leave Bodie Island, it would be an important project commitment that the transportation agencies continue to plan and coordinate directly with local emergency officials after a new 2-lane bridge is built. Traffic accidents on either or both the Wright Memorial Bridge and/or the new bridge during an evacuation could strand motorists on a bridge for hours or more. Along NC 12, there are numerous side roads for

motorists to turn around. Being stranded in gridlock traffic on a 7-mile, 2-lane bridge during a hurricane evacuation could be overwhelming for some vacationers. Please see: http://en.wikipedia.org/wiki/Hurricane_Earl_(2010)

"The storm's center passed roughly 85 mi (140 km) east of Cape Hatteras, North Carolina on September 3. Six fatalities took place in the country due as a result of rip currents and rough seas, three in Florida, two in New Jersey and one in Massachusetts

On August 31, mandatory evacuations began on North Carolina's Ocracoke Island. "I don't remember the last time there was a mandatory evacuation order for the island," stated Commissioner Kenneth Collier of Hyde County. Mandatory evacuations were also issued for Hatteras Island on September 1, with a total of 30,000 residents and visitors affected.

President Barack Obama signed a disaster declaration for North Carolina on the evening of September 1. The action authorized the Department of Homeland Security and the Federal Emergency Management Agency to coordinate relief efforts and makes federal funds available. Officials in Dare County, North Carolina, issued mandatory evacuation orders September 2 for visitors to the coastal county, including the Outer Banks. The mandatory evacuation extended to residents in some areas, including the town of South Nags Head and Hatteras Island. Dare County schools and courts were closed September 2 and were to be closed September 3.

Although the center of Hurricane Earl passed roughly 100 mi (160 km) off the coast of North Carolina, its large size brought hurricane-force winds and a significant storm surge. Heavy rains accompanied the storm, peaking at 4.52 in (115 mm) in Cape Hatteras. The highest winds were recorded in Cape Hatteras at 67 mph (108 km/h) and gusts reached 83 mph (134 km/h); however, there were few reports of damage in relation to the winds. A storm surge of 4.7 ft (1.4 m) came ashore on Hatteras Island, inundating nearby areas. Minor flooding took place along several roads, including North Carolina Highway 12 which was shut down on Hatteras Island. A pier at Atlantic Beach was also damaged by rough seas. Numerous homes along the coast were flooded by rising waters, reaching 3 ft (0.91 m) in places. An estimated 6,600 residences were left without power due to Hurricane Earl. Waves just offshore were measured between 25 and 36 ft (7.6 and 11 m), likely resulting in beach erosion. In Manteo, a gas station lost its canopy and some homes lost roofing shingles due to high winds. Damage in Dare County totaled over $500,000 (2010 USD), with 79 houses in the county sustaining minor damage and another six receiving major damage, mainly due to storm surge. In neighboring Hyde County, strong winds caused about $2 million in crop damage. Several homes were also damaged by fallen trees in the Fairfield and Swan Quarter areas. Throughout the state, damage from Earl amounted to $3.88 million, mainly from losses sustained by national parks and agriculture. Nearly two weeks after Earl's passage, the North Carolina Department of Transportation began to pick up debris left alongside roads in the wake of the storm."

Stormwater Impacts

It is acknowledged that dredging will no longer be required under the Preferred Alternative and short-term impacts to water quality from this construction activity will be greatly reduced. Responses to comments #15 are provided and further described in Sections 3.3.1.3 of the FEIS and the revised NRTR (Section 3.2.1) and Essential Fish Habitat Report (Section 5.2.4). Other measures to minimize water quality impacts are further described in Section 3.3.7.2 of the FEIS.

The response to EPA's comment #18 is noted regarding collecting and treating bridge stormwater runoff. The transportation agencies have not cited the specific cost basis for

determining that the collection and treatment of stormwater from the proposed bridge over Currituck Sound is not 'practicable'. EPA understands that an alternative stormwater management plan is identified in Section 2.1.7.2 of the FEIS. EPA does not agree that this plan has been developed in coordination with NCDWQ, but is potentially being developed by NCDWQ with required input from other regulatory and resource agencies. EPA is a participating member of the Inter-agency Leadership Team's (ILT) Flexible Stormwater Mitigation Team where Mid-Currituck Bridge is being identified as a potential pilot project.

EPA does agree that some of the provisions contained in Sections 2.1.7.2 and 2.1.7.3 are potentially reasonable methods of addressing stormwater. EPA remains concerned that sweeping and vacuuming of the bridges will not be fully implemented by the concession contractor and that the proposed wet detention basins will not be properly monitored and cleaned. The un-captured area of the Preferred Alternative over Currituck Sound would be 24 acres. The un-captured area of Option A over Maple Swamp would be 10 acres. Based upon past field observations with other coastal projects, the types of maintenance activities proposed are given very low priority by the transportation agencies maintenance departments. Vacuuming equipment systems can become expensive to properly maintain and EPA is concerned that contractors will eventually just sweep bridge and roadway pollutants directly into the Sound through the proposed scuppers (miles of bridge drainage holes). EPA would request that specific permit conditions in the Section 401 Water Quality Certification be added by NCDWQ and the applicant to further discourage illegal discharges. Furthermore, wet detention basins become estuary sources of E. coli and other bacteria and do not remove or filter these biological pollutants to receiving waters. Hydraulic trespass from other developments into roadside ditches that lead to wet detention basins becomes an additional untreated source of harmful biological pollutants. Regarding the general water quality monitoring and research program described on Page 2-32 of the FEIS, the NCDWQ would appear to be better qualified and an existing State resource to conduct this monitoring program. Similar to the Ecosystem Enhancement Program (EEP), the monitoring program might be developed as a collaborative effort between NCTA, NCDWQ and other stakeholder interests (e.g., N.C. Coastal Federation).

Avoidance and Minimization Efforts

EPA recognizes that Option A to the Preferred Alternative includes a 2,640-foot bridge across Maple Swamp, a reduction in SAV impacts and a top-down construction method as three of the primary avoidance and minimization measures.

Compensatory Mitigation to Jurisdictional Resources

The FEIS in Section 3.3.6 identifies direct fill impacts to jurisdictional wetlands to be 7.9 acres from the Preferred Alternative after avoidance and minimization measures. The FEIS did not identify avoidance and minimization measures to jurisdictional wetlands for ER2. Jurisdictional impacts from the DSAs are further detailed in Tables 3-9 and 3-10 of the FEIS. Total wetland impacts are given as 31.6 acres to jurisdictional wetlands. Shading impacts to wetlands is not shown in these tables and future tables should include this estimate of shading impact under the proposed Maple Swamp bridge. Permanent fill impacts to wetlands also increased by 1.5 acres for the Preferred Alternative (from the DEIS) due to the placement a median acceleration lane on US 158 (footnote #2).

Regarding the potential purchase of 6 landlocked tracts of Maple Swamp on page 3-59 of the FEIS, EPA will provide additional comments on the final mitigation plan. While EPA generally supports this initiative to preserve high quality wetlands for conservation measures, there is no detail concerning who would manage this proposed conservation area. Regarding the use of the NCDOT's Ballance Farm Mitigation Site, EPA would generally agree with using available credits from this site for the unavoidable compensatory mitigation needs for the proposed project pending EPA's review and acceptance of a final mitigation plan from the transportation agencies.

Shading of SAV habitat in Currituck Sound from the Preferred Alternative is estimated at 4.8 acres and mitigation proposals are discussed in Section 3.3.7.2 of the FEIS. Impacts to Essential Fish Habitat are included in Tables 3-12 and 3-13. Additional impacts to SAV habitat and potential SAV habitat are identified. EPA generally concurs with the general mitigation options identified on page 3-66 of the FEIS provided that the National Marine Fisheries Service (NMFS) acceptance of the options identified is provided prior to the issuance of a ROD. EPA's general preference is for in-kind restoration for direct impacts to SAVs as described in the first bullet on page 3-66. The other three options identified (in-lieu-of mitigation strategies) have not shown documented successes in Currituck Sound.